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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,577	04/23/2001	Oliver Heid	P01,0139	3801

26574 7590 08/28/2003

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EXAMINER

VARGAS, DIXOMARA

ART UNIT PAPER NUMBER

2859

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/840,577

Applicant(s)

HEID, OLIVER

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 30 January 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-8, 10 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Sellers et al. (US 6,075,363).

With respect to claim 1, Sellers discloses an electrical coil suitable for use as a gradient coil for a magnetic resonance apparatus, comprising (Figure 4): at least one electrical conductor configured in a coil pattern (#28); a carrier structure formed by a resin casting for said electrical conductor which fixes said coil pattern of said electrical conductor in a predetermined configuration (Column 4, lines 7-44; Figure 4); a cooling device component; and a non-resinous heat insulator disposed between at least one section of said conductor and said carrier structure (Column 4, lines 25-44).

3. With respect to claim 2, Sellers discloses at least a portion of said conductor is a hollow cylinder adapted for guiding a flowing cooling medium therein (Figure 4).
4. With respect to claim 3, Sellers discloses said at least one section of said electrical conductor is a first section and wherein said cooling device component cools at least one second section of said electrical conductor (Column 4, lines 25-44; Figure 4).
5. With respect to claim 4, Sellers discloses said at least said one second section of said electrical conductor proceeds in an edge region of a spatial extent of said coil (Column 4, lines 25-44; Figure 4).
6. With respect to claim 5, Sellers discloses said coil has a spatial extent forming a hollow cylinder, and wherein said at least one second section of said electrical conductor proceeds in a region of a front side of said hollow cylinder (Figure 4).
7. With respect to claim 6, Sellers discloses said heat insulator surrounds said electrical conductor (Figure 4).
8. With respect to claim 7, Sellers discloses said heat insulator has a lower thermal conductivity than said carrier structure (Column 4, lines 25-44).
9. With respect to claim 8, Sellers discloses said thermal conductivity of said heat insulator is lower by a factor between 1 and 3 than the thermal conductivity of the carrier structure (Column 4, lines 25-55).
10. With respect to claim 10, Sellers discloses said carrier structure includes elements for reducing a non-homogeneity of a magnetic field in which said carrier structure and said electrical conductor are disposed (Column 2, lines 11-17)

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11. With respect to claim 13, Sellers discloses said heat insulator is composed of material selected from the group consisting of glass, ceramic, mineral materials and polymer materials (Column 3, lines 10-25).

12. Claims 1-8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Nerreter (US 6,525,537).

With respect to claim 1, Nerreter discloses an electrical coil suitable for use as a gradient coil for a magnetic resonance apparatus, comprising (Figures 1 and 2): at least one electrical conductor configured in a coil pattern (#2 and #4); a carrier structure formed by a resin casting for said electrical conductor which fixes said coil pattern of said electrical conductor in a predetermined configuration (#5); a cooling device component (#6 and #8); and a non-resinous heat insulator disposed between at least one section of said conductor and said carrier structure (Column 1, lines 40-59).

13. With respect to claim 2, Nerreter discloses at least a portion of said conductor is a hollow cylinder adapted for guiding a flowing cooling medium therein (Figures 1 and 2).

14. With respect to claim 3, Nerreter discloses said at least one section of said electrical conductor is a first section and wherein said cooling device component cools at least one second section of said electrical conductor (Figures 1 and 2).

15. With respect to claim 4, Nerreter discloses said at least said one second section of said electrical conductor proceeds in an edge region of a spatial extent of said coil (Figures 1 and 2).

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16. With respect to claim 5, Nerreter discloses said coil has a spatial extent forming a hollow cylinder, and wherein said at least one second section of said electrical conductor proceeds in a region of a front side of said hollow cylinder (Figures 1 and 2).

17. With respect to claim 6, Nerreter discloses said heat insulator surrounds said electrical conductor (Figures 1 and 2).

18. With respect to claim 7, Nerreter discloses said heat insulator has a lower thermal conductivity than said carrier structure (Column 2, lines 8-54).

19. With respect to claim 8, Nerreter discloses said thermal conductivity of said heat insulator is lower by a factor between 1 and 3 than the thermal conductivity of the carrier structure (Column 2, lines 8-54).

20. With respect to claim 10, Nerreter discloses said carrier structure includes elements for reducing a non-homogeneity of a magnetic field in which said carrier structure and said electrical conductor are disposed (Figures 1 and 2).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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22. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sellers et al. (US 6,075,363) in view of Nagano et al (US 6,239,680).

With respect to claims 11 and 12, Sellers discloses the claimed invention except for said heat insulator comprises fibrous material, or high-resistance foam material. However, Nagano discloses the use of foam material (Column 6, lines 20-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Nagano's teachings about the use of foam with Sellers' electrical coil suitable for use as a gradient coil for a magnetic resonance apparatus for the purpose of improving the system by avoiding overheating of the coil system by using a more suitable material as a heat insulator.

23. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nerreter (US 6,525,537) in view of Nagano et al (US 6,239,680).

With respect to claims 11-13, Nerreter discloses the claimed invention except for said heat insulator comprises fibrous material; a material selected from the group consisting of glass, ceramic, mineral materials and polymer materials or high-resistance foam material. However, Nagano discloses the use of foam material (Column 6, lines 20-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Nagano's teachings about the use of foam with Nerreter's electrical coil suitable for use as a gradient coil for a magnetic resonance apparatus for the purpose of improving the system by avoiding overheating of the coil system by using a more suitable material as a heat insulator.

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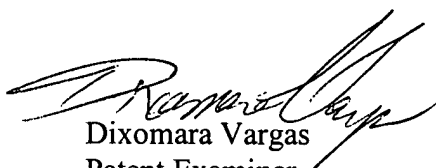
Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited at the PTO 892 discloses resin casting carrier structures for the gradient coils or MR systems using foam for isolating the heat and acoustic noise.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (703) 305-5705. The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.


Dixomara Vargas
Patent Examiner
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